

Onslow County Schools (Jacksonville NC)

EDU 2011 Pilot Program

Interim Report

February 24, 2012

Background

This program is intended to provide cell enabled devices to high school students utilizing applications targeted for use with various math classes. 333 devices were provided during the fall 2011 semester and approximately 507 devices are being provided for the spring 2012 semester. These include a combination of Android Tablets (349) and cell enabled netbooks (158). This program was designed to create resources for students with a goal of increasing their math skills. The program includes all seven high schools in the district and the Onslow County Learning Center, an alternative learning setting. The math classes include Algebra 1 and 2, Geometry, Honors Geometry, Pre-calculus, and AP Calculus.

Project Benefits

The program encompasses instructional/administration applications accessible via web browser and accessible via various mobile devices deployed to students. Included applications are: K-Nect, Adobe Flash Player 11, Realplayer, Office Talk, Adobe Reader, AndyGraph, Astro File Manager, and Groupboard. The instructional/administration applications are designed to provide teachers and/or administrators with access to closed portal sites that provide the following functionality:

- Access to problem sets
- e-Content Repository
- Instant Messaging
- Assessment
- Management of the above

An instructional portal is populated with sequenced instructional units aligned and correlated to problem sets that support the North Carolina State Standards. Teachers are able to assign problem sets to the entire class or individual students. Delivery schedules are made available to the teachers based upon pacing guides and correlated to individual textbooks. Additional instructional resources are available through the e-Content Repository. This repository includes web links to resources or files viewable on the devices deployed to the students.

The program has included classes for both Fall 2011 and Spring 2012. Total number of students currently participating is 507. All 507 students are high school students taking various math classes. The devices are constantly used for participation in the included math classes. Devices are used to access material both on campus and remotely. Again, daily use is normal.

Onslow County Schools has a Third Party Evaluator, Project Tomorrow, under contract for data collection and program benefit evaluations. Previous data collected for mobile deployments prior to the EDU 2011 initiative showed an increase in student performance. Prior evaluation reports showing the efficacy of the 24/7 mobile device initiatives are attached as addendum A.

Project Costs

Excluding the purchase of tablets for the project, the off premise connectivity charges to date are \$63,891.41. These charges are from September 2011 through January 2012, (i.e. 2011 Fall Semester.) This equates to approximately \$42.00 per student per month. While eRate approvals are in place, discounts have not yet been received by North Carolina Information Technology Services (ITS), our contracted service provider for Sprint and Verizon services. Our current discount rate is approximately 65% so once the discounts are applied our per student discounted cost should be approximately \$15.00 per student per month.

Data usage statistics November 2011 – January 2012 are as follows:

Total 3G Kbytes used:

- November = 72,778,023
- December = 68,232,472
- January = 31,977,654

Average per student 3G Kbytes used:

- November = 217,898
- December = 148,009
- January = 69,686

Highest usage (one student) 3G Kbytes:

- November = 7,724,693
- December = 10,539,817
- January = 6,411,575

It is important to note that the month of January, the data usage dropped considerably due to the collection of devices from the students at the end of the fall 2011 semester and redeployment of devices to new students at the beginning of the spring 2012 semester.

Effectiveness of Protective Measures

Onslow County Schools utilizes Zscaler Web Security which leverages the cloud to deliver comprehensive protection against advanced and emerging threats. Because it relies on multi-tenant 100% cloud architecture, real-time security is provided without the need to deploy and manage appliances, software or agents.

Onslow County Schools security teams can create and deploy granular web-based policies — by user, group, location or action — for the tablets and netbooks deployed as part of the 1:1 initiatives ensuring CIPA compliance for any device issued to a student.

For Android Tablets, App Blocker and Safe Browser are also configured for added protection and to prevent the potential of any apps being added that are not approved for instructional use. Safe browser prevents searches that may provide inappropriate material.

Both teachers and students are provided training on how the devices will be used prior to deployment which includes how to use the devices safely. Teachers are constantly monitoring device use to insure students' safety.

Lessons Learned

Processes for device configuration were an issue initially. The technical and instructional staffs were not equipped to set up the devices quickly. We now contract with equipment vendors to pre-load all devices with required applications.

Billing management currently is limited. The level of detail provided by our carriers does not provide detailed and/or summary reporting for different times of the day. This information would be beneficial to evaluate when the students are using the devices after school hours. We are currently working with our carriers to provide the additional level of detail required. Another billing issue is we are spending a great deal of time reconciling bills to ensure correctness. We have had discussions with a wireless TEM vendor to see what programs can be put in place to assist.

Most of our campuses are wireless and ubiquitous in the classrooms associated with our 1:1 initiatives. 1:1 access on campus and outside of the classrooms is enhanced through the usage of broadband cellular services that are provided through the EDU 2011 initiative.

Addendum A:

Previous Mobile Deployment Evaluation Results

Introduction

This Evaluation Report builds on the program evaluation conducted Sept 2009 through May 2010 for the Project K-Nect program in Onslow County Schools (NC) for Digital Millennial Consulting by Project Tomorrow and highlights the current findings for the period Aug 2010 – Jan 2011. As Project K-Nect entered its third year of implementation in Onslow County School District, the fall 2010 cohort was comprised of 59 students and three teachers from Algebra I, Algebra II and pre-calculus courses at Dixon High School and Southwest High School. The participating teachers have a long-standing relationship with Project K-Nect and an understanding of the value that smart phones and the Project K-Nect tools provide to their students. Project K-Nect continues to serve as a demonstration project highlighting the curricular uses of smart phones, and more recently net books with Onslow Connect, to increase student achievement and decrease the digital access gap amongst students.

Students in Onslow County schools are required to complete four credits in math for graduation (Algebra I, Geometry, Algebra II and one other math course). Participating teachers have integrated Project K-Nect and the smart phones into a course sequence comprised of Algebra I (semester), Geometry (semester), Algebra II (semester) and pre-calculus/Advanced Placement Calculus (year). Project K-Nect is included in the pre-calculus/Advanced Placement Calculus class at Southwest High School only. Students typically complete the Project K-Nect course sequence in five semesters and meet both their high school graduation and college admissions requirements. The district measures student proficiency in math through the state-administered end-of-course assessments for Algebra I, Geometry and Algebra II. Students participating in Advanced Placement Calculus and Advanced Placement Statistics have the option to take Advanced Placement exams upon completion of their course.

Participating Project K-Nect teachers use many of the standard features of the smart phone, as well as the algebraic problem sets and a mobile-enabled suite of tools for sharing student work, facilitating collaboration between students and assessing student activity and growth. To help students master math concepts,

teachers are encouraged to create problem-based lessons and activities that utilize the features and functionality of the smart phones as well as the Project K-Nect environment. Teachers have the flexibility to select the Project K-Nect components that best meet their instructional needs in the classroom and, as such, students have a variety of experiences and utilize the smart phones and tools to varying degrees. During their participation in the Project K-Nect classes, students are given a smart phone with a data plan that allows for 24/7 access to the internet and Project K-Nect environment enabling them to be online and connected with their teacher and other students anytime in or out of school.

Teachers and administrators report that the introduction of Project K-Nect in these pilot schools has resulted in more students pursuing advanced math courses during high school. As one Project K-Nect teacher noted, “**...it is a major accomplishment for these students to have grown academically, emotionally and socially to undertake the course load that an AP Class involves.**”

Appendix A illustrates the student cohort groups who have and are participating in Project K-Nect. This report highlights the results of fall 2010 and includes data collected from students through pre and post student focus groups, pre and post attitudinal surveys and Project Tomorrow’s Speak Up survey as well as data collected from teachers through classroom observations, informal interviews and email. As of the writing of this report students’ utilization data from the smart phone was unavailable.

Methodology

During August 2010, Project Tomorrow staff visited Onslow County Schools and conducted classroom observations and student focus groups with students who were new to the Project K-Nect program. The focus groups were audio taped for subsequent transcription. In Dec 2010, Project Tomorrow staff returned to Onslow County schools to facilitate a post focus group with the students and observe the Algebra I math class.

Pre and post surveys: Teachers administered online pre and post surveys developed by Project Tomorrow. Project Tomorrow staff provided the high school advisors with a URL, and the teachers administered the online survey during class time. Thirty five of the thirty-nine Algebra I and Algebra II students participated in the pre-survey (90 percent) and thirty four participated in the post survey (87 percent). The Calculus students who were new to Project K-Nect did not participate in the pre or post surveys.

Post assessments: Staff from Project Tomorrow and Onslow County Schools worked together to collect and summarize available data from the end-of-course exams for Algebra I and Algebra II. Currently assessment instruments are not available for pre-calculus.

Speak Up Benchmarks: The program evaluation includes specific Speak Up benchmarks to provide additional context and perspective regarding the use of technology for learning in the following areas:

- **Measures of implementation:** As a counter point to the Project K-Nect data and to assist with developing guidelines for future implementations, Speak Up data is included for the question *“How could your school make it easier for you to use technology for schoolwork?”*
- **Technology Utilization:** To gain a broader perspective about the effective uses of technology for instruction, the following Speak Up questions are included *“How are you using technology for schoolwork?”*, *“How would you like to use mobile devices for school work?”* and *“What Internet based tools or applications do you use outside of school?”*.

The Speak Up 2010 survey was open for input between Oct and Jan 2011. Project Tomorrow staff notified the Project K-Nect advisors via email and provided the survey link. Fifty-six 9th-12th grade students participated in the survey (95 percent of the Project K-Nect students).

Pre and Post Student Assessments: In order to streamline the evaluation process and align it with other initiatives within the district, staff from Onslow County School District is in the process of revising the pre-assessment instruments for Algebra I, Algebra II and pre-calculus. The pre-assessments are unavailable for fall 2010; hence, only the standardized post-assessments are available for inclusion in the program evaluation. Project Tomorrow staff compiled aggregated end-of-course test results from the teachers and staff from Onslow County School District. Additional data is

required from Onslow County School District in order to draw comparisons between Project K-Nect students and the general student population.

Findings

Students report they like using the smart phone to learn because:

“..I find it helpful because students can IM each other to get help with a problem in class...”

“...sometimes it is easier to learn when another student explains it...”

“..they make class fun for the students and the teacher...”

“..it’s easier to get the help you need in order to complete your assignment...”

“..It allows students to connect with their classmates... to help them with problems, and it gives them a familiar device to work with... you can pick up the smart phone and IM your teacher and or classmate... or you can look at a video that your former classmate posted to help you understand what you’re doing wrong...”

The joint goal of Project K-Nect is to increase student achievement and decrease the digital access gap for students in participating schools. To determine if these goals are achieved the team collected background information from program records, student focus groups, pre and post surveys and the Speak Up 2010 survey. It is important to note that while Project K-Nect initially intended to serve a select cohort of students over time; in reality, students enter the program at various points in their math career. For example, during fall 2010, 50 percent of the Algebra I class included students who had previously taken Algebra I and failed, as well as a new cohort of ninth grade students. The Algebra II class was equally split between ninth grade students who successfully completed Algebra I during middle school and students from cohort 2.A.2 (see appendix A) that started in Jan 09. Lastly, the pre-calculus class was comprised of both students who had been involved with Project K-Nect since the beginning of their high school math career, as well as students introduced to Project K-Nect for the first time in fall 2010.

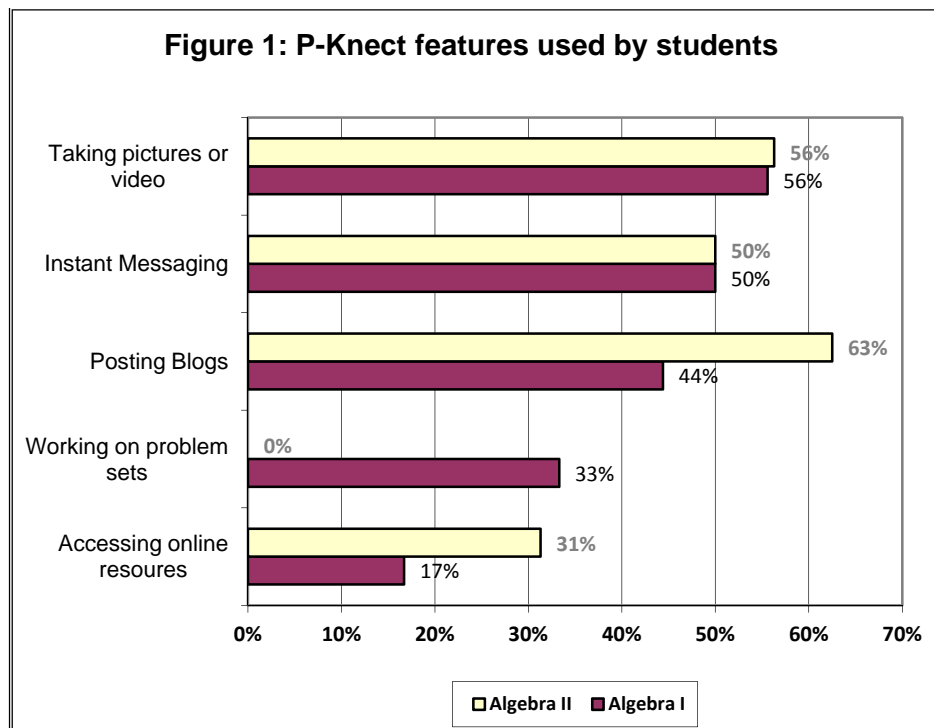
How are teachers using the Project K-Nect tools to facilitate learning? Which tools are used in the classroom? How are the tools used? What are the results?

The professional development model for Project K-Nect encourages teachers to use the smart phone features and Project K-Nect environment to facilitate collaboration, create relevant problem-based learning experiences and provide opportunities for students to capture and discuss their problem solving strategies using digital media. Teachers using the smart phone and Project K-Nect environment have the flexibility to adapt a diverse group of tools into their instructional practice providing a framework to **facilitate collaboration** through blogs, instant messaging and email, **capture, post and discuss problem-solving strategies** through digital photos and video capabilities or **practice algebra-based problem sets**. Teachers have also incorporated the use of geo-connectors to capture and illustrate math ideas, and Poll Everywhere that can be used with the smart phones to instantly assess students' understanding of key math concepts.

Interviews with teachers and students reveal that the smart phones are most tightly integrated into the Algebra I curriculum and to a lesser degree with Geometry, Algebra II, pre-calculus and AP calculus. Students in Algebra I report using instant messaging to communicate with their teachers or other students, photographing or videotaping their work as they solve problems using algebraic formulas and properties, posting their videos and communicating via the blogs and solving problem sets (figure 1). Currently, Project K-Nect does not have problem sets for Geometry, Algebra II or Calculus and, hence, participating teachers typically create problems where students are required to apply their understanding of math. As a result, students are more likely to use the blog to upload homework assignments for review and discussion, instant message each other (or the teacher) for help and video or photograph math in a real-world context.

Furthermore, the post survey revealed that Algebra II students are more likely than Algebra I students to use the smart phone to access other online resources. It is unknown if this behavior is the result of class assignments or because the class includes students who've been involved in Project K-Nect for an extended period of time and those students are more comfortable using the features of the devices for multiple purposes.

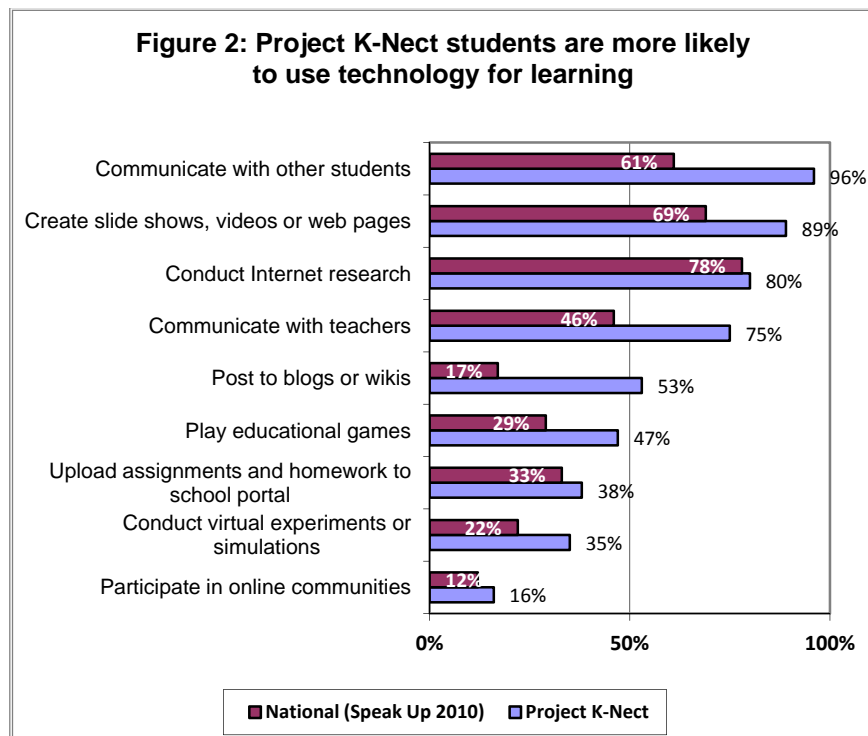
Teachers determine the degree to which they will integrate the Project K-Nect tools into daily instruction; as a result, the implementation varies by teacher and semester. During fall 2010, over one-half of the students in Algebra I reported using their smart phone 15-90 minutes per day while the majority of students in Algebra II used the smart phone less than 15 minutes per day



Students are comfortable using the Project K-Nect features. Overwhelmingly students agree they are comfortable using the smart phone features, sending instant messages and posting to blogs. As expected, students who reported using the smart phone features more often were also more comfortable using the features. In some cases, students reported they were frustrated with a variety of hardware and software problems they experienced and recommended the possibility of using their own smart phones or cell phones (see Students' satisfaction with smart phones, page 11).

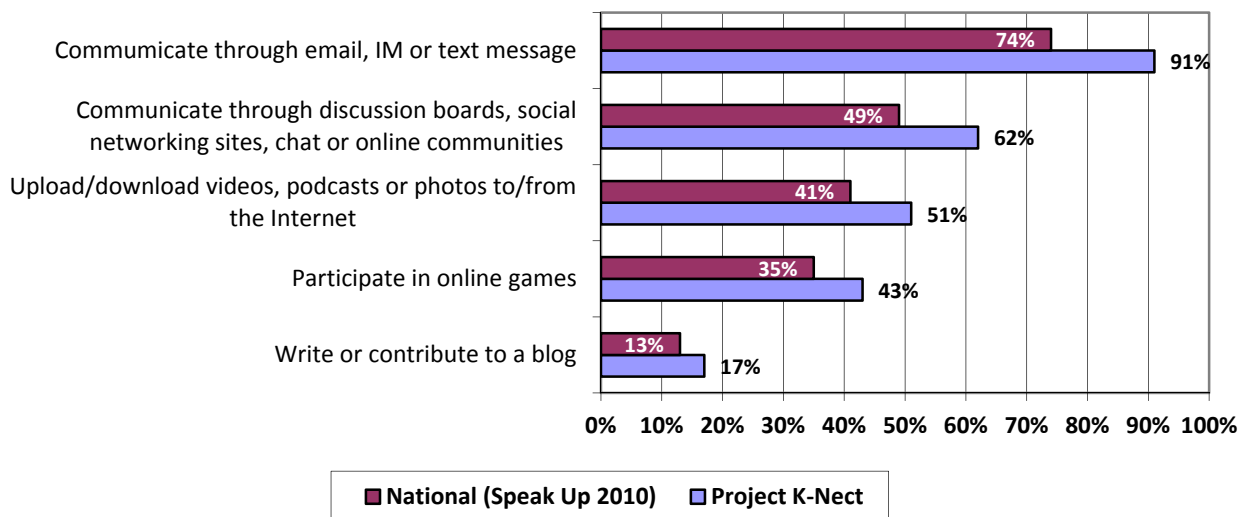
More students are using technology for schoolwork. Project K-Nect students are learning how to use, and seeking out new, resources to support their learning (figure 2). For example, Project K-nect students reported greater use of communications tools (via email, IM, text or chat) to communicate with students or teachers than high school students nationally (Speak Up 2010). They also are more likely to create slide shows, videos or webpages, post to online blogs or

wikis, play educational games or conduct virtual experiments or simulations. For many of the Project K-Nect students, the smart phone provided a much needed connection for help and support, first with the teacher, and subsequently with other classmates; as well as access to additional resources to support their learning. This was especially critical for students who had not previously felt successful in math, according to Mrs. Kliewer, Algebra I teacher.



Furthermore, their increased use of technology is not limited to school. The Project K-Nect students are more likely to also use technology outside of school compared to their peers nationally (figure 3). For example, they are more likely to communicate with others through email, IM or text message (91 percent), communicate via Web 2.0 tools, such as discussion boards, social networking sites, chat or online communities, (62 percent), upload/download videos, podcasts or photos to the Internet (51 percent), participate in online games (43 percent), or write or contribute to a blog (17 percent). Students increased use of and familiarity with technology through Project K-Nect helps students easily integrate the use of technology to other curricular areas.

Figure 3: Project K-Nect students are more likely to use technology outside of school



How do students' perceptions about or interest in math change as a result of participating in Project K-Nect?

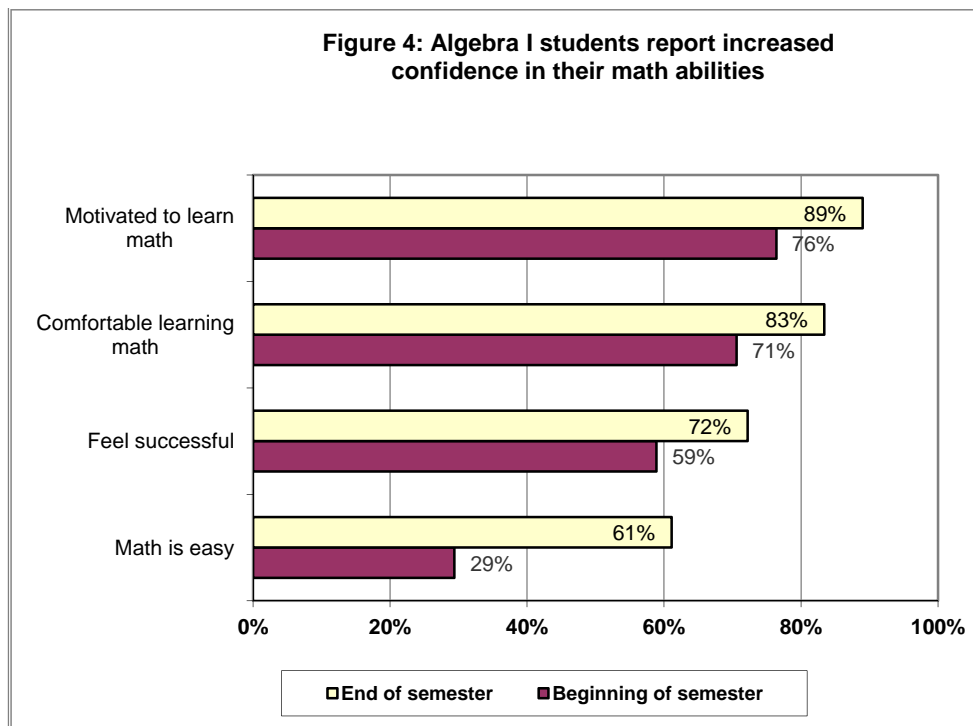
Project K-Nect helps students learn math by providing tools that:

- provide the ability to get help from their teacher or classmates during or after school
- provide immediate access to Internet resources to look up additional information
- empower students to talk about math and their problem solving strategies
- review how their classmates or teacher solved a problem via text or video
- practice solving problems through standards-based simulations
- give them the ability to capture and discuss the practical application of math

As teachers incorporate the Project K-Nect tools into their instructional strategies and students become more comfortable using the tools, their attitudes towards math changes (figure 4) and they become more confident in their math abilities as illustrated in the responses from the Algebra I students during fall 2010.

Students' confidence in their math abilities increases. By the end of the fall 2010 semester, 89 percent of the Algebra I students reported they are more motivated to learn math compared to 76 percent at the beginning of the semester. The majority of students reported they are also more comfortable learning math (83 percent), felt more successful (72 percent) and better prepared to take the end-of course exam (72 percent). By the end of the semester, the number of

students who thought, “math is easy” doubled indicating a greater confidence in their ability to be successful in math.



Students report greater confidence in their ability to talk about math. A core instructional goal for Project K-Nect teachers is to help students become more fluent and comfortable talking about math. This goal is realized as students videotape their problem solving strategies, photograph and blog about their most recent assignments or teach each other via instant messaging. Participating teachers share that it takes time for students to feel comfortable talking about math and many times the process starts slowly with students requesting help from the teacher (via instant messaging). As their confidence increases, they begin to ask each other for help and when they become even more comfortable with math, they will begin to help their classmates. As a result of this focused-approach, by the end of the semester, 83 percent of students reported they could explain how they solved a math problem compared to 72 percent at the beginning of the semester. Furthermore, about three-quarters of the students reported they are comfortable discussing solutions and feel confident talking about math. By the end of the semester students report an increased level of confidence and are more likely, to work with other students on math problems (89 percent) compared to the beginning of the semester (65 percent)

Students express an increased interest in college and math related degrees and careers.

During the semester, Project K-Nect teachers assign their students activities designed to connect abstract math concepts to relevant problems outside the classroom. As a result of this instructional strategy, students gain a better understanding about the purpose and application of the math they are learning in the class; which, in turn, may inspire them to pursue advanced math course or careers that utilize math. We asked students to assess the influence that Project K-Nect had on their career or academic plans, one-quarter of the Algebra I students expressed an interest in taking additional math classes, including Advanced Placement courses. Furthermore, Algebra I students reported they are more interested in attending college (56 percent) or pursuing a degree or career that would use their math skills (33 percent). Students also reported an increased interest in joining the military (22 percent). The top career picks for Algebra I students included science related fields (including healthcare), engineering/technology or math related fields, entertainment and military, fire or law enforcement.

Are students who participate in Project K-Nect more likely to demonstrate proficiency in math than students who did not participate in the program?

As of the writing of this evaluation report, end of course scores are available for Project K-Nect Algebra I and Algebra II courses only. Comparison scores for non-Project K-Nect classes, the district and state have not been provided. Ninety percent of the Algebra I students demonstrated proficiency on the end of course exam and 100 percent of the Algebra II students demonstrated proficiency. Furthermore in spring 2010, students from the first Project K-Nect cohort achieved another major accomplishment by successfully completing the college level AP Calculus college curriculum and taking the AP exam. Their accomplishment illustrates that through their participation in Project K-Nect these students “have grown academically, emotionally and socially to undertake the course load that an AP class involves,” shared Mr. Kliewer, AP Calculus Teacher.

What are teachers’ perceptions about students’ interest and proficiency in math?

For fall 2010, the Algebra II class was comprised of students who previously participated in Project K-Nect, as well as ninth grade students who completed Algebra I in middle school. While Mr. Spring, Algebra II teacher, did not comment specifically on his students’ interest and proficiency in math as a result of Project

K-Nect; he observed that today, students appeared more at ease with the technology tools compared to the initial Project K-Nect start-up. During his interview, he also shared that students have greater access to technology compared to the beginning of the project and many students expressed a desire to use their own mobile devices. In general, Mr. Spring noted that students in his Algebra I classes were more likely than students in his Algebra II classes to use the features and functionality of the smart phone suggesting a need to update the Project K-Nect curriculum to meet the specific learning outcomes of each course. Furthermore, Ms. Kleiwer, Algebra I teacher, noted that in the classes where she tightly integrated the Algebra I problem sets into the curriculum and students regularly used the Project K-Nect features, they demonstrated a better understanding of the course material supporting the idea that increased access and use will reduce the digital access gap and increase student achievement in math.

How can the mobile learning experience be improved?

“Instant messaging was a helpful way to help other people when they didn’t know how to solve a problem.”

“I was able to ask other people how they solved a problem when I didn’t have a clue.”

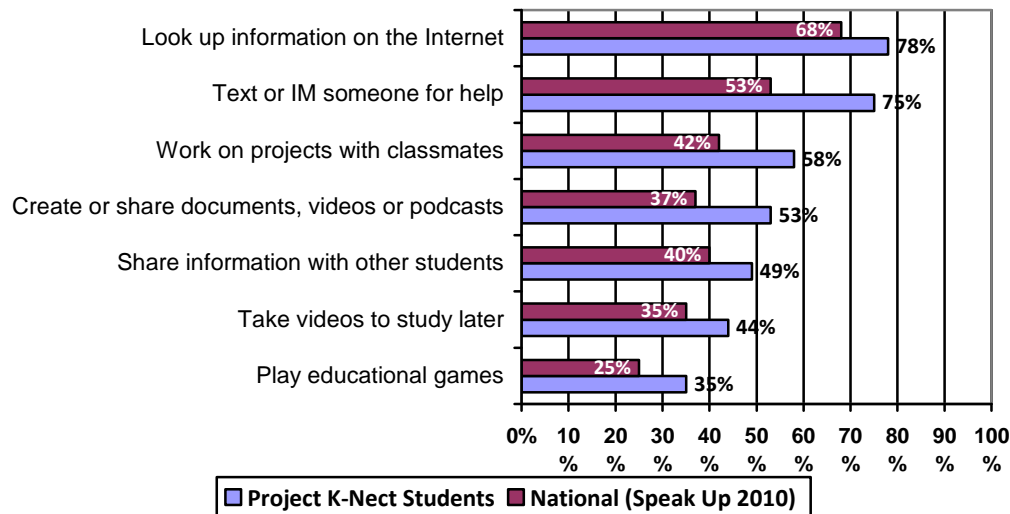
“I found the blogs helpful because you could look at other people’s blogs to see how they solved a problem (sic).”

Project K-Nect helps close the digital access gap. Project K-Nect continues to provide a critical link to the internet for many of the participating students. While 100 percent of the Algebra II students report they have fast internet access at home, about 30 percent of the Algebra I students still do not have this same level of access. For these students, Project K-Nect continues to provide a crucial connection to the internet, their teacher and fellow classmates.

Project K-Nect students highlight strategies for integrating mobile devices into instruction. As a result of participating in Project K-Nect, students realize the value of using mobile devices for learning (figure 5). When asked how they would use mobile devices to help with schoolwork, Project K-Nect students were more likely, than their peers nationally, to use mobile devices to look up information on the internet, text or IM some to get help with school work, work on projects and share information with their classmates, create or share documents,

videos or podcasts, take videos of class presentations or experiments to study later and play educational games (Speak Up 2010).

Figure 5: Project K-Nect students demonstrate value of mobile devices for instruction



Students' satisfaction with the smart phones and Project K-Nect environment.

Overall students appreciate and value the mobility and opportunities for collaboration that smart phones afford them. However, students continue to voice concerns about the low battery life, sensitive screens, “freezing up,” “delayed response times in loading programs,” internet access problems, inconsistent access to Instant Messenger and the inability to queue messages. Furthermore, students are frustrated by the process for uploading videos and identifying who is active or online in the community at any particular point in time. As a result of these frustrations, many students reported they would like to use their own cell phones and smart phones to text a classmate for help. Students had a variety of recommendations to improve the current environment including:

- **Instant/Text Messaging:** To minimize their frustration with the instant messaging feature in Project K-Nect, students suggested providing the ability to queue instant messages and attach photos to an instant message. Alternatively, many students suggested the possibility of using their own cell phones to send text messages. While this solution is expedient for students who have access to their own personal smart phones or cell phones, it does not address the primary goals of Project K-Nect to provide internet access and a safe collaborative working environment for all students. Allowing

students to use their own cell or smart phones with the Project K-Nect environment requires careful planning to ensure that all students have the ability to actively participate in the environment and that the issues of student safety and security are addressed.

- **Uploading videos/Blogging:** Streamline the process so that it is easier to both upload the videos and subsequently view the videos and blogs at a later date.
- **Additional resources:** Students would like a centralized website with resources they can use for math, as well as greater access to resources on the internet. Students reported that many resources were blocked.
- **Collaboration tools:** Project K-Nect provides many of the tools that students across the nation want to use to collaborate, including: instant or text messaging, an online environment that allows them to connect with their teacher or other students, and blogs or wikis. Students participating in Project K-Nect also show strong preferences for using online chat, social networking sites (such as Facebook), Skype and Webcams to facilitate collaboration (Speak Up 2010).

Recommendations/Next Steps

Through focus groups, discussions and interviews students and teachers had a variety of recommendations outlined below:

Do you think the smart phone could help you in your other classes as well? Which classes and why?

The majority of Algebra I students (89 percent) report they would use a smart phone for other classes if it were available and allowed. Top recommendations include world history, English, Health and science. Students value the mobility and access the smart phone provides; however, many students would like a “cross” between a smart phone and iPad in order to take advantage of a larger screen, “pull-out” keyboard and greater functionality. If students could design their own Project K-Nect mobile device they would recommend a device larger than a smart phone and smaller than an iPad with both a touch screen and keyboard to meet their individual preferences. The device would include access to online

textbooks, text messaging, screen capture capabilities to capture and share how they solved a problem, and the ability to take notes and email them.

How can we make it easier for students to use technology for schoolwork?

As the team considers future expansion, Project K-Nect students provide valuable insight and ideas for improving technology access. The top priority for Project K-Nect students, compared to their peers nationally, is greater access to the websites they need (84 percent) and tools that facilitate communication with their teachers (42 percent) and communication and collaboration with their classmates (38 percent). As the team considers expansion and sustainability, it is important to consider the digital access gap in Onslow County Schools as reflected amongst the Project K-Nect students. Currently, 27 percent of Project K-Nect students suggest the school should provide them with laptops or other mobile devices for school use. By contrast, about two-thirds of the Project K-Nect students prefer using their own mobile devices, such as cell phone, smart phone or MP3 player and about 50 percent want to use their own laptops or netbooks (Speak Up 2010).

How do we effectively leverage smart phones for learning?

Although Project K-Nect is currently integrated into the suite of high school math courses, Mr. Spring and Mrs. Kliwer noted that some the features and functionality are not as well suited for the expected learning outcomes in Algebra II, Geometry, Calculus or Statistics. The current environment and problem sets provide a rich framework for teaching Algebra I and helping students learn how to work together, ask for help, discuss problem-solving strategies, or practice concepts from Algebra I. However, the tools (as provided) do not effectively support students as they progress through geometry, Algebra II, calculus and statistics. In these classes, students are required to think more abstractly, and collect and analyze data using the mathematical concepts and equations they have learned in previous semesters; as such, the current features and functionality are not as well suited for these specific learning outcomes. Based on the course requirements, new assignments and problem sets should be created that would more effectively leverage the Project K-Nect tools (such as blogging, videotaping or IM) for the smart phone or another device in these more advanced math courses. We recommend working with the team to identify specific Project K-Nect learning outcomes and activities to help students achieve the specific

outcomes. Once defined, the appropriate device and tools can be selected to achieve the recommended goals.

As this report demonstrates, there is much to be gained from mobile learning initiatives and we will continue to work with the team to share their successes with other educators.

